8-channel RTD input

Type	RT318
Category	RTD (Resistance Temperature Detector) input
Resistance temperature detectors	Pt100
Measuring method	Three-wire system
Load current	1 mA
Temperature measurement range	-50° to +270°C (-58° to +518°F)
Converted data	800 to 4000
Input channel	8 channels / module
Insulation	Photo-coupler insulation (not isolated between the channels)
Conversion rate	400 ms / 8 channels
Resolution	12 bits / 0.025 % (0.1 °C / count)
Wire resistance correction range	Within 4Ω
Overall accuracy	±0.3 % (at 25 °C)
Tepaerature drift	±100 ppm / °C
Internal current consumption	5 Vdc, 600 mA or less
Insulation resistance	10 MΩ (500 Vdc)
Withstand voltage	500 Vac, 1 minutes (between internal and external circuits)
Weight	500 g
Internal circuit	

Terminal connections

Terminal No.	Terminal name	Function
1	(NC)	No Connection
2	(NC)	(do not connect any wire)
3	(NC)	
4	(NC)	
5	(NC)	
6	(NC)	
7	1A	
8	1B	RTD input channel 1
9	1C	
10	1G	
11	2A	
12	2B	RTD input channel 2
13	2C	
14	2G	
15	3A	
16	3B	RTD input channel 3
17	3C	
18	3G	
19	4A	
20	4B	RTD input channel 4
21	4C	
22	4G	
23	5A	
24	5B	RTD input channel 5
25	5C	
26	5G	
27	6A	
28	6B	RTD input channel 6
29	6C	
30	6G	
31	7A	
32	7B	RTD input channel 7
33	7C	
34	7G	
35	8A	
36	8B	RTD input channel 8
37	8C	
38	8G	

		1	N.C.
N.C.	2		
		3	N.C.
N.C.	4		
		5	N.C.
N.C.	6		
		7	1A
1B	8		
		9	1C
1G	10		
		11	2A
2B	12		
		13	2C
2G	14		
		15	3A
3B	16		
		17	3C
3G	18		
		19	4A
4B	20		
		21	4C
4G	22		
		23	5A
5B	24		
		25	5C
5G	26		
		27	6A
6B	28		
		29	6C
6G	30		
		31	7A
7B	32		
		33	7C
7G	34		
		35	8A
8B	36		
		37	8C
8G	38		

RT318

(1) Status indicator LEDs (PWR/FLT/RUN)
    1) PWR
       PWR will be lit in normal state of analog power supply, and will not be lit in abnormal state.
    2) FLT
       FLT will be lit if an error has occurred in the module.
    3) RUN
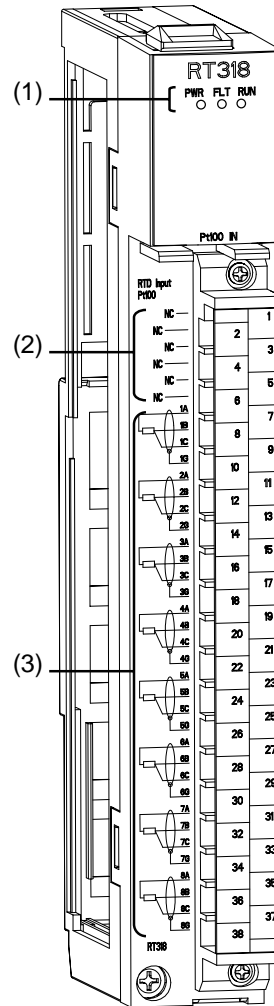   RUN will be lit in normal state of the module, and will not be lit in abnormal state.

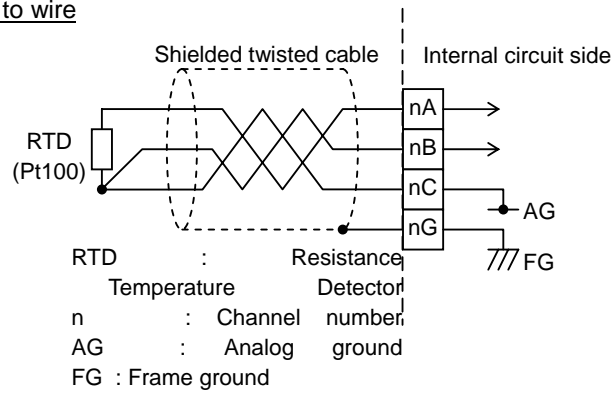| Name	Lit ●	Not lit ○
PWR	Normal state	abnormal state
FLT	Error occurred	Normal state
RUN	Normal state	abnormal state

(2) Unused terminals
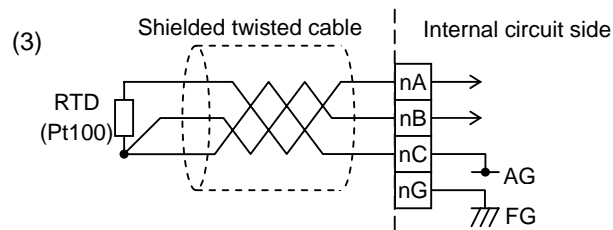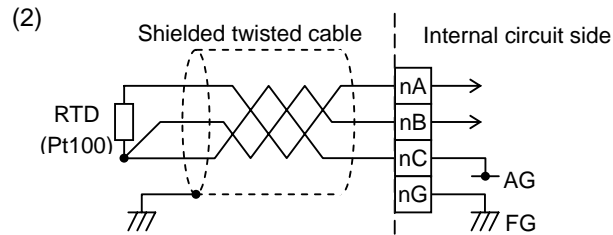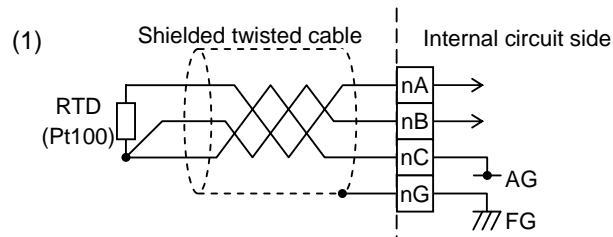
(3) RTD input terminals (1A/1B/1C/1G to 8A/8B/8C/8G)
    These terminals will be connected with external RTD signals.

3

How to wire

Shielded twisted cable | Internal circuit side

RTD
(Pt100)

nA →
nB →
nC
nG

AG

FG

RTD : Resistance
  Temperature Detector
n : Channel number
AG : Analog ground
FG : Frame ground

If measurement values are unstable due to noise influences, change the grounding for the shield in the following order for stable measurement.

(1)

Shielded twisted cable | Internal circuit side

RTD
(Pt100)

nA →
nB →
nC
nG

AG

FG

(2)

Shielded twisted cable | Internal circuit side

RTD
(Pt100)

nA →
nB →
nC
nG

AG

FG

(3)

Shielded twisted cable | Internal circuit side

RTD
(Pt100)

nA →
nB →
nC
nG

AG

FG

Supplementary

To minimize the influences of the wire resistance, be sure the wire length to be same of each cable from the terminal nA , nB or nC to RTD.